

CLAIMS:

1. Use of syndiotactic/atactic block polypropylene;

- (i) as a modifier of isotactic and/or copolymeric polypropylene, and/or another polyolefin;
- (ii) as a component in an adhesive composition;
- 5 (iii) as a component in a shock absorber;
- (iv) as a component in a waterproof membrane;
- (v) in the form of a packaging film or as a component thereof;
- (vi) in the form of a drawn fibre, film or thread, or as a component thereof;
- 10 (vii) as a continuous phase component in a shapable composition;
- (viii) as a component in an acoustic absorbent material;
- (ix) in the form of a foam or as a component thereof;
- (x) in a composition for moulding into a footwear component;
- (xi) as a bitumen modifier;
- 15 (xii) as a compatibilizer, an emulgator or an emulsifier;
- (xiii) as a component in a coextrudate;
- (xiv) as a viscosity improver;
- (xv) in a composition or article substantially stable to gamma irradiation;
- 20 (xvi) as a component in plastics recycle material; or
- (xvii) when cross-linked, as a spilled oil absorber.

2. Use according to claim 1, wherein the molecular weight of the syndiotactic/atactic block polypropylene is at least 120 kD.

3. Use according to claim 1 or claim 2, wherein the syndiotactic/atactic block polypropylene comprises alternating blocks of syndiotactic and atactic sequence.

4. Use according to any one of claims 1 to 3, wherein the syndiotactic/atactic block polypropylene comprises a fraction of syndiotactic triads (rr) of at least 70%, as determined by ¹³C NMR.

5. A polyolefin modified with syndiotactic/atactic block polypropylene.
6. A polyolefin according to claim 5, which comprises a high impact resistance polypropylene, comprising a dispersion of syndiotactic/atactic block polypropylene in a continuous phase comprising isotactic and/or copolymeric polypropylene.
7. A high impact resistance polypropylene according to claim 6, wherein the amount of syndiotactic/atactic block polypropylene is in the range 3 to 50% by weight of the polypropylene.
8. An adhesive composition comprising a syndiotactic/atactic block polypropylene and at least one component selected from a wax, a tackifying resin and a reinforcing resin.
9. A shock absorber comprising syndiotactic/atactic block polypropylene.
10. A waterproof membrane comprising a sheet of syndiotactic/atactic block polypropylene modified with carbon black, a UV absorber, an antioxidant and/or a weather resistance improver.
11. A packaging material comprising a blown film of polypropylene comprising a syndiotactic/atactic block polypropylene.
12. A packaging material according to claim 11, wherein the polypropylene comprises a blend of the syndiotactic/atactic block polypropylene with isotactic or atactic polypropylene.
13. A packaging material according to claim 11 or claim 12, wherein the blown film is shrinkable.
14. A drawn fibre, film or thread of syndiotactic/atactic block polypropylene.

15. A shapable composition comprising a continuous phase of syndiotactic/atactic block polypropylene in which is dispersed isotactic polypropylene, copolymeric polypropylene or another polymer.

16. A shapable composition according to claim 15, which softens upon heating and becomes rigid upon subsequent cooling.

17. Use of a shapable composition according to claim 16, in the production of a plaster cast.

18. An acoustic absorbent material comprising a blend, laminate or coextrudate of syndiotactic/atactic block polypropylene with at least one of isotactic, syndiotactic or copolymeric polypropylene, or another polymer.

19. A foam comprising syndiotactic/atactic block polypropylene.

20. A foam according to claim 19, which further comprises a polyolefin blended with the syndiotactic/atactic block polypropylene.

21. A foam according to claim 19 or claim 20, which is extruded, injection moulded or compressed.

22. A composition for moulding into a footwear component, which comprises a syndiotactic/atactic block polypropylene optionally in combination with one or more plasticizers, polymeric fillers, mineral fillers and protective agents.

23. A composition comprising a syndiotactic/atactic block polypropylene and a mineral filler.

24. A bitumen composition comprising a blend of bitumen with a syndiotactic/atactic block polypropylene.

25. A bitumen composition according to claim 24, wherein the amount of syndiotactic/atactic block polypropylene is less than 35% by weight of the composition.

26. A coextrudate of syndiotactic/atactic block polypropylene with polypropylene and another polyolefin.

27. A coextrudate according to claim 26, wherein the syndiotactic/atactic block polypropylene comprises a layer in a laminate between a layer of the polypropylene and a layer of the polyolefin.

28. A coextrudate according to claim 27, wherein the polypropylene comprises syndiotactic polypropylene and the polyolefin comprises isotactic polypropylene.

29. A motor oil which includes syndiotactic/atactic block polypropylene.

30. A thermoplastic elastomer gel comprising cross-linked syndiotactic/atactic block polypropylene.

31. A spilled oil absorber comprising a thermoplastic elastomer gel according to claim 30.

32. A compound, blend or mixture of syndiotactic/atactic block polypropylene with plastics recycle material.

33. A composition or article substantially stable to gamma irradiation, which comprises syndiotactic/atactic block polypropylene.